Urban Forestry

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Growing the urban forest – Feeding the landscape economy

Most Europeans currently live in urban areas. By 2050 it is expected that 90% of Europeans and the citizens of other developed countries will reside in urban areas. In this context, a city that feels and functions like a forest is increasingly being proposed as a vision for future sustainable cities. Green infrastructure is widely proposed (e.g. by the European Commission) as a strategy for delivering nature-based solutions that support climate adaptation capacity, carbon neutrality, and in general a regenerative development in Europe and elsewhere.

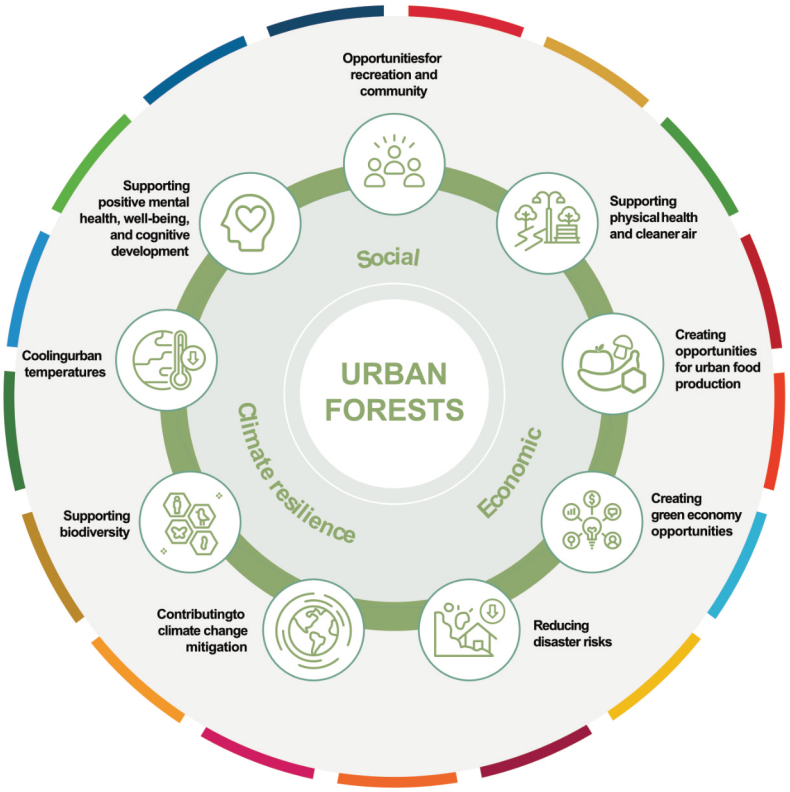
Research has shown that forested ecosystems are increasingly promoted as key biomes able to provide ecosystem services (MEA, 2005) . Already during 19th century industrialisation, many larger cities developed so-called *forest cities*. Due to their quantity and quality, forest areas located in and around urban areas are therefore foremost in providing the backbone of urban green infrastructure.

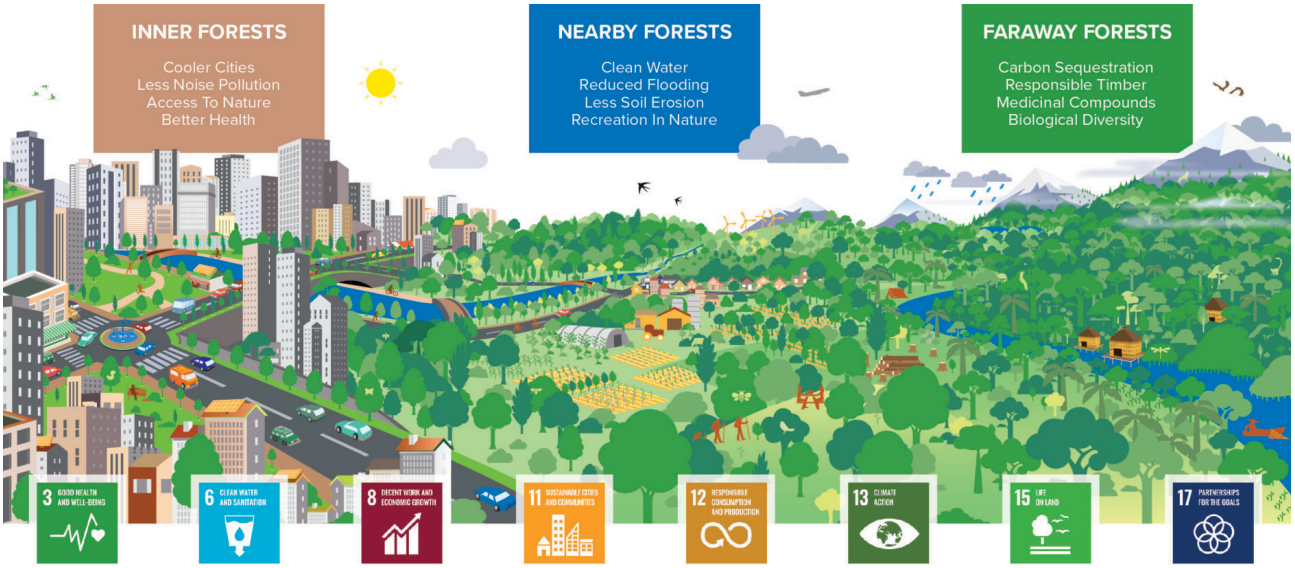
Urban forests come in many different shapes and sizes. They include amongst others: urban parks, street trees, landscaped boulevards, gardens, orchards, cemeteries, river and coastal promenades, greenways, river corridors, wetlands and nature reserves. Urban forests, through planned connections of green spaces, form the green infrastructure on which communities depend.

Green infrastructure (GI) has been defined as *"a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services while also enhancing biodiversity"* (European Commission, 2023). Urban green-blue infrastructure has been defined, in turn, as "*the elements of biodiversity and the organised systems that can be traced back to the Natural Capital, of any urban area, valuable or degraded, including the individual technological devices that rely on biodiversity and are integrated in the built environment, such as green roofs and vegetated walls, permeable pavings, rain gardens, and other systems for the collection and management of rainwater, which promote, through the provision of ecosystem services environmental protection, economic feasibility, health and well-being, equity and social inclusion*" (Andreucci, 2013).

Urban forests are dynamic ecosystems that provide critical benefits to people and wildlife. They help filter air and water, control stormwater, conserve energy, and provide animal habitat and shade. They add beauty, form, and structure to urban design. By reducing noise and providing places to recreate, urban forests strengthen social cohesion and add economic value to our communities.

Multiple benefits of urban forest for society, economy and climate resilience, *source: UNECE, 2021*





Urban, Peri-urban and Faraway Forest and the UN Sustainable Development Goals they support
source: https://atlasofthefuture.org/project/cities4forests

Urban and peri-urban forestry has been gaining attention in recent years as a valuable strategy for addressing a number of urban challenges in the development of a more sustainable and resilient city model. The EU Green Deal has set targets of: *"no loss of urban green spaces by 2030", "a 5% increase by 2050", "a minimum of 10% tree canopy cover in every European city, town and suburb",* and *"net gain of green space that is integrated to buildings and infrastructure"* (Konijnendijk, 2023). The new EU Forest Strategy for 2030 is one of the European Green Deal flagship initiatives that builds on the EU Biodiversity Strategy for 2030 and addresses all the multiple functions of forests. It contributes to achieving the EU's greenhouse gas emission reduction target of at least 55% in 2030 and climate-neutrality in 2050. The strategy sets a vision and concrete actions for increasing the quantity and quality of forests in the EU and strengthening their protection, restoration and resilience.

The new European Biodiversity Strategy for 2030 has set new objectives for the protection of biodiversity in the European Union. Among these objectives are to increase the quantity, quality and resilience of the forests in order to retain their function for both biodiversity and climate. The strategy aims for planting at least 3 billion additional trees in the EU by 2030, in full respect of ecological principles. The strategy mentions the particular benefits of tree planting in cities and the role of The New European Urban Greening Platform in facilitating urban tree planting.

Exploring the transition

Transition from the current urban forestry policy and practices to sustainable ones could be done with plans able to offer opportunities to grow the local economy, activating initiatives that can contribute to effective management, protection, and enhancement of local ecosystems. Those plans should align with multiple strategic priorities. They should also identify multiple internal and external stakeholders to support their implementation. Looking at existing practices, the following actions are still needed:

- Incorporation of additional urban forestry considerations in planning and development processes
- Enhancement of tree planting opportunities in consultation with internal and external partners
- Securing funding for urban forestry initiatives through internal and external sources
- Designing and implementing integrated tree inventories and work order management systems
- Developing formalised asset valuation approaches for trees
- Delivering education and outreach initiatives for staff and all interested parties.

An Urban Forest Master Plan for Birmingham 2021-2051 is a case for a positive transition pathway. An Urban Forest Master Plan is a future destination that provides detailed information, recommendations and

Key Performance Indicator	Performance Level				Piority
	Low	Moderate	Good	Optimal	
T1 – Relative tree canopy cover					**High**
T2 – Age Diversity					**High**
T3 – Species Diversity					**High**
T4 – Species Suitability					**High**
T5 – Publicly owned trees *(trees managed intensively)*					**High**
T6 – Publicly owned natural areas *(trees managed intensively)*					**Medium**
T7 – Trees on private property					**High**
T8 – Other elements of the UF: *shrubs, hedges, green walls and roofs, plants, animals and water*					**Medium**
T9 – Tree benefits (incl. Biodiversity)					**High**
T10 – Wider environmental considerations *(including climate change, air quality and water)*					**Medium**

Monitoring matrix of urban forest Key Performance Indicators (KPIs) on the example of the Birmingham UFMP

resources that would inform the community and its tree managers on how to plan a route to achieving "full stocking". Birmingham's Urban Forest Master Plan is the collective vision for all of Birmingham's natural capital and green infrastructure. It outlines how to develop and manage the urban forest and defines the aspirations of stakeholders who will continue to benefit from a healthy and diverse green city. It aims to act as a roadmap, providing detailed information, recommendations and resources to effectively and proactively manage and grow the city's tree canopy. The Master Plan provides structure for the implementation of long-term strategies which can be used to encourage all those involved with the urban forest to understand, respect, and enhance Birmingham's urban forest (Anonymous, 2021).

Birmingham's Urban Forest Master Plan will help to bring existing policies, plans, guidelines and frameworks together under one umbrella. It provides a comprehensive and suitable guide to all practices involving any and all aspects of the urban forest, including both green and blue infrastructure. It will inspire further research into the urban forest, its needs, its impacts, and its progress in Birmingham. This Plan will contribute to Birmingham's reputation as a green city, as well as improving the lives of its inhabitants. Improving the urban forest and its management practices will result in a healthier city. A diverse treescape promotes biodiversity, improves health and wellbeing, and can even influence socio-economic factors such as crime rates, educational attainment and life expectancy.

Through the development of the Urban Forest Master Plan, Birmingham hopes to lead by example and inspire other cities to follow suit. Dividing the Master Plan into smaller targets makes this task more manageable. The Plan outlines a number of key indicators for the overall success and health of the urban forest. Monitoring performance in this way will help achieve Birmingham's goals and ultimately the wider vision.

The UFMP outlines a vision for the development of the urban forest. In the case of Birmingham, it sets out to answer the question where the local urban forestry program wants to be in 30 years. As a framework

document, it sets a series of targets with associated priorities and actions in relation to performance indicators, but it will need to be supported by and implemented through specific strategies and plans for each of these targets.

The UFMP also links to other relevant policies and initiatives at the city level, and even beyond. An example of this is 'Our Future City Plan' which sets out strategic directions for Birmingham towards the year 2040, for example under the theme of City of Nature. A full policy review of relevant documents from international, national, regional and local levels has been undertaken as part of this project to ensure this Master Plan supports and is supported by all aspects of urban forestry policy.

This new Urban Forest Master Plan is championed by Birmingham City Council and Birmingham TreePeople, and was developed in a collaborative process with representatives of the local government; interest groups; and representatives of the community; and with the support of Treeconomics. The Plan outlines key topics, priorities, and actions under three central themes:

1. Trees and Forest Structure,
2. Community Framework,
3. Sustainable Resource Management Approach.

Under the bottom line: How do we measure success?

KPIs can reflect the priorities to expand, protect, improve, and connect urban forests. They display some of the contributions relevant administrations make to people, nature, and the economy through the urban forests. The use of KPIs also reflects their commitment to evidence-based work and helps ensuring that there is robust data available to the urban forestry sector to underpin policies and operational decisions. Among the key performance indicators for urban forestry are urban canopy cover, urban tree diversity, stormwater control, habitat provision, air quality improvement, greenhouse gas sequestration and storage, physical and visual access to nature. Mainly the focus is still too much on the environmental and ecological functions / benefits of urban forests, while more research and study is needed as far as resource management as well as social benefits and economic trade-offs are concerned (Zürcher & Andreucci, 2017).

Some research and analysis tasks for learners

Research questions to be further investigated include but are not limited to:

- Social and economic versus ecological and environmental synergies and tradeoffs of urban forests.
- Economic valuation methodologies: Beside the Ecosystem Services and Benefit Transfer approaches.
- Climate change effect on tree planting and urban forestry in the urban built environment.
- Human perceptions of urban trees and urban forests.
- Ecosystem disservices and appropriate urban forest design strategie

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